

III. REMARKS

Applicants previously filed a certified English translation of the specification of the priority document, Japanese Patent Application No. JP 2003-112090, on April 20, 2007. Furthermore, Applicants have amended the specification of the above-captioned application to include the priority claim (See Preliminary Amendment (A), filed October 14, 2005, at 3, lines 4-7) and the Declaration for United States Patent Application, filed October 14, 2005, properly claims priority to JP 2003-112090, filed April 16, 2003 and on International Application No. PCT/JP2004/001519. Therefore, Applicants have previously perfected the foreign priority claim, and the claims of the above-captioned application should enjoy a priority date of April 16, 2003.

Claim 1 has been amended to improve form and grammar, which has no further limiting effect on the scope of this claim. Claim 1 has also been amended to delete the phrase “by welding,” which has a broadening effect on the scope of claim 1.

No new matter has been added to the above-captioned application by the present amendment, and the present amendment raises no new issues.

A. The Invention

The present invention pertains broadly to a corrosion resistant metal made thermal type mass flow rate sensor such as may be employed to detect a mass flow rate in a gas supply line, and the like, in a semiconductor manufacturing facility. In accordance with an embodiment of the present invention, a corrosion resistant metal made thermal type mass flow rate sensor is provided that includes the features recited by independent claim 1. In accordance with another embodiment of the present invention, a corrosion resistant metal made thermal type mass flow rate sensor is provided that includes the features recited by

independent claim 17. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage achieved by the various embodiments of the present invention is that a corrosion resistant metal made thermal type mass flow rate sensor is provided that permits manufacture of ultra-small-sized products that operate in a consistent manner without a lot of product-to-product variability. Another advantage achieved by the various embodiments of the present invention is that a thermal type mass flow rate sensor is provided that is corrosion resistant, has a fast response speed, and that does not emit particles or suffer the occurrence of outside leaks.

Certain additional advantages are achieved according to certain claimed embodiments of the present invention. For example, by making the structure shown in Figure 5 of Applicants' disclosure, it becomes easier to mount sensor S to a fluid supply device. As another example, when sensor S is mounted to a fluid supply device, as shown in Figure 15, strain caused in the sensor part (1) is completely eliminated so that high precision measurement is achieved.

B. The Rejections

Claims 1-3, 6, 7, 13, 14 and 18-22 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

Claims 1-3, 7, 10, 18, 21 and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Seki et al. (U.S. Patent 6,981,410 B2, hereafter, the "Seki Patent") in view of Kinard et al. (U.S. Patent 5,393,351, hereafter the "Kinard Patent"). Claims 6 and 13-16 stand rejected under 35 U.S.C. 103(a) as unpatentable over the Seki Patent in view of the Kinard Patent, and further in view of Azima (U.S. Patent 6,062,077, hereafter the "Azima Patent"). Claims 19 and 20 stand rejected under 35 U.S.C. 103(a) as unpatentable over the

Seki Patent in view of the Kinard Patent, and further in view of Tamamori et al. (U.S. Patent 6,818,911 B2, hereafter the “Tamamori Patent”).

Applicants respectfully traverse the Examiner’s rejection and request reconsideration of the above-captioned application for the following reasons.

C. Applicants’ Arguments

For a claim to comply with 35 U.S.C. § 112, second paragraph, it must (1) set forth what the Applicant regards as the invention and (2) it must do so with sufficient particularity and distinctness so as to be sufficiently “definite.” Solomon v. Kimberly-Clark Corp., 55 U.S.P.Q.2d 1279, 1282 (Fed. Cir. 2000). During patent prosecution, definiteness of a claim may be analyzed by consideration of evidence beyond the patent specification, including the inventor’s statements to the Patent and Trademark Office. Id. In view of the present amendment, claims 1-3, 6, 7, 10 and 13-22 are now in compliance with 35 U.S.C. § 112 for the following reasons.

The Examiner contends that claims 1-3, 6, 7, 10, 13, 14 and 18-22 are indefinite because, with respect to claim 1, it is unclear

“whether a thin film forming a temperature sensor (line 8) and a metal film forming temperature sensor (line 16) and a heater mounted on rear face (line 9) and a heater formed on insulating film (line 17) are same or different elements” (Office Action, dated September 4, 2007, at 2, lines 7-9).

Claim 1 clearly recites “a thin film forming a temperature sensor... wherein the thin film comprises...a metal film forming the temperature sensor on the insulation film.” Applicants contend that it would be clear to a person of ordinary skill in the art that, as recited by claim 1, the “metal film” is a component of the “thin film.”

Applicants also contend that it is clear from claim 1, as amended, that the “heater mounted on a rear face side of the fluid contacting surface of the corrosion resistant metal substrate” and “the heater formed on the insulation film” are the same “heater.” Claim 1 also clearly recites “a thin film forming a temperature sensor... wherein the thin film comprises... the heater formed on the insulation film.” Applicants contend that it would be clear to a person of ordinary skill in the art that, as recited by claim 1, the “heater” is a component of the “thin film.”

The Examiner also contends that claims 1-3, 6, 7, 10, 13, 14 and 18-22 are indefinite because, with respect to claim 1, it is unclear “[h]ow can a thin film comprise an insulation film also form a temperature sensor?” (Office Action, dated September 3, 2007, at 2, lines 9-12). As shown in Figure 2 of Applicants’ disclosure as originally filed, the “thin film” (F) comprises an “insulation film” (5) and a “metal film” (M) that forms the temperature sensor on the insulation film (See Applicants’ Specification as originally filed, at 12, lines 18-21). As evident from claim 1, the “metal film” is the component of the “thin film” that “form[s] the temperature sensor on the insulation film” and that the “insulation film” is a different component of the “thin film.” A person of ordinary skill in the art would immediately realize, upon reading claim 1, that the “thin film” forms a “temperature sensor” because it includes the “metal film” that forms the “temperature sensor” and that the “insulation film” is another component of the “thin film.”

For all of the above reasons, claims 1-3, 6, 7, 10 and 13-22 are definite and are in compliance with 35 U.S.C. § 112.

i. The Section 103 Rejection

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against claims 1-3, 6, 7, 10 and 13-22 because the Seki Patent is not valid prior art, and the Kinard Patent and the Azima Patent fail to teach, or suggest, all of the subject matter of the claimed invention.

ii. The Seki Patent

The Seki Patent discloses a “flow sensor and method of manufacturing the same” (See Abstract of the Seki Patent). However, the Seki Patent was filed May 9, 2003 as U.S. Patent Application No. 10/434,563. The earliest effective date of the Seki Patent as prior art is May 9, 2003. On the other hand, as discussed above, the claims of the present application enjoy a priority date of April 16, 2003. Therefore, it is established that the Seki Patent cannot be valid prior art against the claims of the above-captioned application because the earliest effective date of the Seki Patent as prior art is only May 9, 2003, which is pre-dated by the priority date of April 16, 2003.

For all of the above reasons, the Seki Patent is not valid prior art against Applicants’ claimed invention. No further comment regarding the Seki Patent is believed to be necessary.

iii. Japanese Patent Application Nos. JP 2002-135283 and JP 2002-243589

The Seki Patent claims priority to Japanese Patent Application No. JP 2002-135283 filed May 10, 2002 and JP 2002-243589 filed. Japanese Patent Application No. JP 2002-135283 published on November 19, 2003 as Japanese Publication No. JP 2003-329697, and is therefore not valid prior art against the claims of the above-captioned application. Japanese Patent Application No. JP 2002-243589 published on March 18, 2004 as Japanese Publication No. JP 2004-085244, and is therefore also not valid prior art against the claims of the above-captioned application.

iv. The Kinard Patent

The Kinard Patent discloses “multilayer film multijunction thermal converters,” such as shown in Figure 6, wherein a modified MLF-MJTC (500) includes a heater element (506), (col. 11, line 57, to col. 12, line 2). However, the Kinard Patent does not teach, or suggest, “a corrosion resisting metal substrate having a fluid contacting surface” and “the corrosion resistant metal substrate is fastened hermetically to the sensor base” as recited by independent claim 1.

As admitted by the Examiner (Office Action, dated September 4, 2007, at 3, lines 20-21, and at), the Kinard Patent does not teach, or suggest, a “fluid controller” as recited by claims 6 and 13-16, and the “metal film comprising a Cr/Pt/Cr film” as recited by claims 19 and 20.

v. The Azima Patent

The Azima Patent discloses “techniques for making and using a sensing assembly for a mass flow controller,” which includes providing separating terminals between windings on a sensor tube (See Abstract of the Azima Patent). The Azima Patent discloses that the separating terminals allow secure and reliable electrical connections to be made to wire wound on the sensor tube, and act as standoffs that support the sensor tube about an insulative form (See Abstract of the Azima Patent).

vi. The Tamamori Patent

The Tamamori Patent discloses an “array structure and method of manufacturing the same, charged particle beam exposure apparatus, and device manufacturing method, wherein an insulating layer and conductive layer are sequentially formed on the lower surface of a substrate, then, a plurality of pairs of opposing trenches are formed in the substrate, and an insulating layer is formed on each of the side surfaces of the trenches by thermal oxidation (See Abstract of the Tamamori Patent). The Tamamori Patent also discloses that the conductive layer is exposed by etching the bottom of each trench, and a conductive member is selectively grown in each trench using the conductive layer as a plating electrode to form a blanking electrode (See Abstract of the Tamamori Patent). The Tamamori Patent also discloses that an opening is formed between the opposing blanking electrodes (See Abstract of the Tamamori Patent).

vii. Summary

The Examiner's Section 103 rejections are all based on the Seki Patent being valid prior art. However, the Seki Patent is not valid prior art, and the Kinard Patent, the Azima Patent, and the Tamamori Patent are insufficient, either alone or in combination, to teach or suggest, each and every limitation recited by Applicants' claims. Therefore, the Examiner's Section 103 rejections are untenable and must be withdrawn.

Applicants note that no prior art rejection stands against claims 10 and 15-17.

V. CONCLUSION

In view of the present amendment, claims 1-3, 6, 7, 10 and 13-22 are in compliance with 35 U.S.C. § 112.

The Examiner has failed to establish a prima facie case of obviousness against Applicants' claimed invention because the Seki Patent is not valid prior art, and the Kinard Patent, the Azima Patent, and the Tamamori Patent, either alone or in combination, do not teach, or even suggest, each and every limitation recited by the claims. In addition, Applicants point out that the Examiner has not evinced any prior art rejection against claims 10 and 15-17; therefore, these claims are allowable for the reasons of record.

For the above reasons, claims 1-3, 6, 7, 10 and 13-22 are in condition for allowance, and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below signed attorney for the Applicants.

Respectfully submitted,

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